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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CONLEY, SEAN E

ART UNIT PAPER NUMBER

1744

DATE-MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/773,438

Applicant(s)

SALBILLA, DENNIS L.

Examiner

Sean E Conley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2001 and 17 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 2-4, 7-11, 13, 16-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,6,12,14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/31/01 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 22-26, drawn to a heat exchanger, classified in class 165, subclass 5.
 - II. Claims 18-21, drawn to a distillation apparatus, classified in class 202, subclass 81.
 - III. Claims 1-17, drawn to a method of applying an electrical charge to an object in a flow path of a fluid stream, classified in class 422, subclass 22.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are unrelated because they have different modes of operation and also perform different functions. Group I is drawn to a heat exchanger that can be used to perform many different functions whereas the distillation apparatus of group II requires a distillation column in combination with a heat exchanger for the specific task of distillation. The invention of group I does not teach anything to do with distillation and can be used, for example, to heat or cool fluids in a pipe or a gas stream in a duct. Furthermore, the invention of group III, drawn to a

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method of applying an electrical discharge to an object in a flow path of a fluid stream does not teach a heat exchanger or a distillation apparatus. The invention of group III can be used to clean the tubes of water pipes or the tubes of an exhaust pipe without requiring the heat exchanger or distillation apparatus. Additionally, the inventions of group I and II do not teach or require the step of applying an electrical discharge to an object in a flow path.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. This application contains claims directed to the following patentably distinct species of the claimed invention: Species A, species B and species C are listed below:

Species A:

Claim 12: applying a constant electric charge

Claim 13: applying a modulated electric charge

Claim 16: applying an attractive electric charge

Claim 17: applying a repulsive electric charge

Species B:

Claim 2: applying an electric charge to an object upstream to downstream
of a heat exchanger.

Claim 5: applying an electric charge to a heat exchanger

Claim 10: applying an electric charge to a slurry settler

Species C: (an election in Species C is only required if the applicant elects
claim 5 in Species B)

Claim 6: applying an electric charge to the chassis or shell of the heat
exchanger

Claim 7: applying an electric charge to baffles of the heat exchanger

Claim 8: applying an electric charge to a floating head of the heat
exchanger

Claim 9: applying an electric charge to one or more tubes or tube bundle
of the heat exchanger

Applicant is required under 35 U.S.C. 121 to elect a single claim from each of the three species A, B and C (an election of species C is only required if claim 5 is elected in species B) listed above for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include

all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

5. During a telephone conversation with Gino Catena on September 16, 2003 a provisional election was made without traverse to prosecute the invention of Group III, claims 1, 5, 6, 12, 14 and 15. Affirmation of this election must be made by applicant in replying to this Office action. Claims 2-4, 7-11, 13 and 16-26 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Objections

6. Claim 15 is objected to because of the following informalities: Claim 15 is written such that it depends from itself. The examiner thinks the applicant meant to have claim 15 depend from claim 14 and therefore, claim 15 will be treated as though it depends from claim 14. Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1, 5, 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over LaHaye et al. (U.S. Pat. 4,892,139) in view of Harms (U.S. Pat. 3,933,606).

LaHaye et al. disclose a means and method for preventing unwanted accumulation in heat exchangers. The method comprises applying and maintaining an electric charge on an object within the flow path of a fluid stream, wherein the fluid stream contains contaminants. More specifically, the step of applying an electric charge to an object comprises applying an electric charge to the body of a heat exchanger. The electric charge is applied and maintained on the heat exchanger in order to impart an electrical charge on the heat exchanger having the same polarity as the charge of the particles in the gas stream. Since the charges have the same polarity, the heat

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exchanger repels the particles in the gas stream with sufficient force to overcome the inertia imparted to the particles by the gas stream flowing through the heat exchanger. Thus the particles of dust, ash or other particulate matter in the gas stream are deflected away from the heat exchanger surfaces. This prevents build up and accumulation of particles that could restrict or clog the gas flow and/or prevent efficient heat transfer to the surface elements (see column 1, line 60 to column 2, line 25). It is further disclosed that the voltage of the electrical charge being applied to the object can vary in the range of 100 to 6000 volts (see column 5, lines 40-44).

As shown in figures 1 and 2, a heat exchanger system (10) comprises a combustion nozzle arrangement (11), a combustion chamber (12), electrostatic negative ionization wall (13) and a heat exchanger section (14) through which a gas flow (15) of particulate laden gas flows from the combustion chambers (12) generated by the combustion fuel.

However, LaHaye et al. do not specifically recite the step of adjusting the magnitude of the electric charge.

Harms discloses a water treatment apparatus and process for electrolytically removing suspended and dissolved impurities from contaminated water. The process comprises feeding contaminated water to a column where it is exposed to an electrical field created between a plurality of oppositely charged perforate plates by a pulsating electrical signal (see columns 2-4). More specifically, Harms teaches that it is known to vary the magnitude if the electrical charge applied to the fluid in order to affect a desired

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degree of contaminant removal depending upon the composition of the water being treated (see column 5, lines 57-61).

Therefore, since LaHaye et al. teach a large voltage range that is used to impart an electrical charge on the fluid, it would have been obvious to one of ordinary level of skill in the art at the time the invention was made to further modify the method of LaHaye et al. and adjust the magnitude of the electrical charge as taught by Harms in order to affect a desired degree of contaminant removal in the fluid being treated.

10. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over LaHaye et al. as applied to claim 1 above, and further in view of Sivavec et al. (U.S. pat. 6,451,210 B1)

LaHaye et al. do not teach or suggest the step of determining the level of contaminants in the fluid stream.

Sivavec et al. teach a method and system for treating a contaminated fluid stream. The term "fluid stream" includes water environments as well as environments in any of a gas, vapor or liquid state. Specific elements of the system include a sensing module to detect contaminants in a vapor or aqueous stream. The sensing module can be a flow-through cell that holds a sensor and that exposes the sensor to a contaminant in the fluid stream. Monitoring of contaminant concentration and other parameters in the influent stream to a carbon bed can be used to determine a correct sequence of treatment. Once the concentration has been determined the fluid is passed to an adsorption zone which can include a filter or precipitation unit. A turbidity sensing unit

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can be sued to direct an aqueous VOC stream to a filter or precipitation unit, prior to carbon bed treatment. Other treatment processes include ion exchange beds, air stripping columns and filters (see column 2, line 30 to column 3, line 25). This reference has been relied upon to teach that it is known to measure the concentration of contaminants prior to treatment in order to determine the correct type of treatment.

Therefore, it would have been obvious to one of ordinary level of skill in the art at the time the invention was made to modify the method of LaHaye et al. and include a step of measuring the contaminant concentration in the fluid stream in order to determine the correct treatment parameters as taught by the method of Sivavec et al.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. 3,975,257 to Hulse

U.S. Pat. 5,122,352 to Johnson

U.S. Pat. 5,846,301 to Johnson et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean Conley, whose telephone number is (703) 305-2430. The examiner can normally be reached on Monday-Friday 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Robert Warden, can be reached at (703) 308-2920. The Unofficial fax

phone number for this group is (703) 305-7719. The Official fax phone number for this Group is (703) 872-9310.

When filing a FAX in Technology Center 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communications with the PTO that are not for entry into the file of the application. This will expedite the processing of your papers.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [robert.warden@uspto.gov]. All Internet e-mail communications will be made of record in the application file. PTO employees will not communicate with applicant via internet e-mail where sensitive data will be exchanged or where there exists a possibility that sensitive data could be identified unless there is of record express waiver of the confidentiality requirements under 35 U.S.C. 122 by the applicant. See the Interim Internet Usage Policy published by the Patent and Trademark Office Official Gazette on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist, whose telephone number is (703) 308-0661.

SEC *He*
September 26, 2003

Robert J. Warden, Sr.
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